

Figure 4-1. Shaded relief digital elevation model image of Long Valley Caldera. The scene boundaries of both years of AVIRIS data are shown.

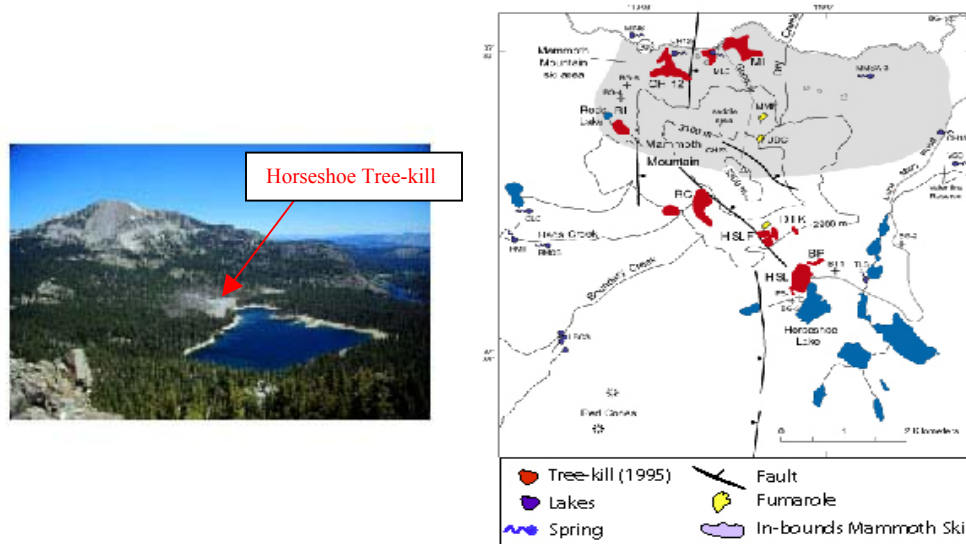


Figure 4-2. Picture on the left looking northeast with Horseshoe Lake in the forefront and Mammoth rising to the left. The tree-kill is visible on the northern shore of the lake. Map on the right showing known CO₂-induced tree-kills on Mammoth Mt.

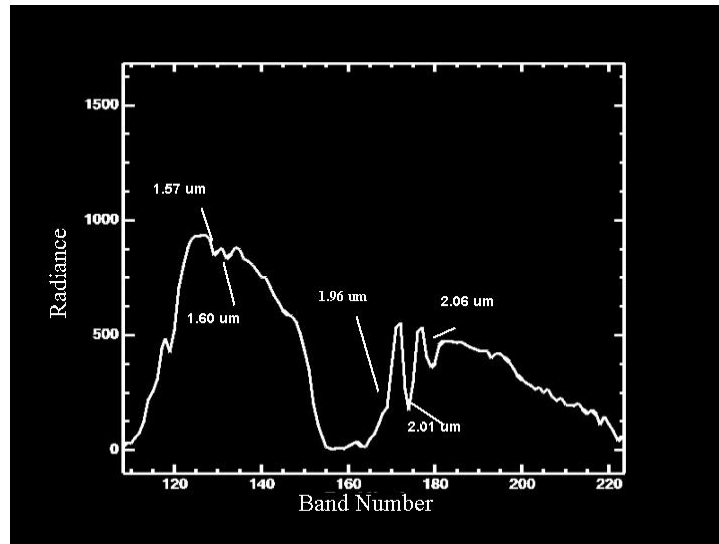


Figure 4-3. Spectral signature showing the major CO₂ absorption regions.

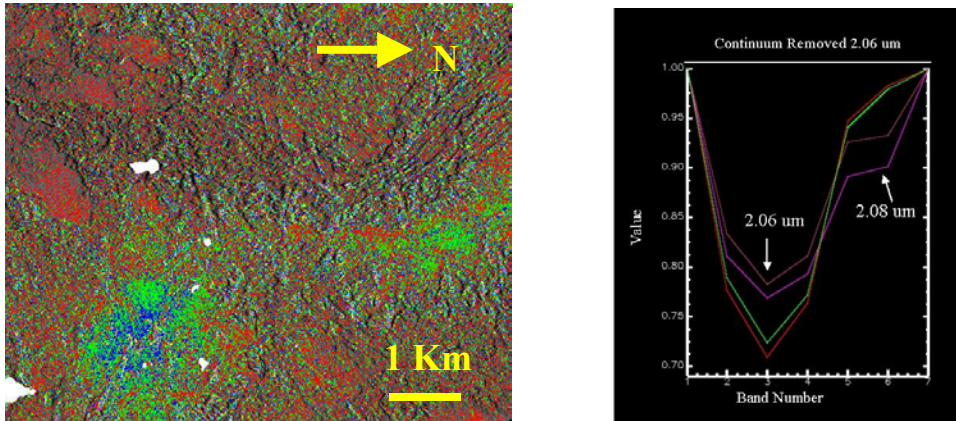


Figure 4-4. Subset of 2000 AVIRIS image shown on the left. A continuum removal has been applied to the 2.06 μm CO_2 absorption feature from 2.04 – 2.10 μm . The resulting image was density sliced into eight arbitrary color levels. The spectra on the right are average signatures extracted from selected density classes.

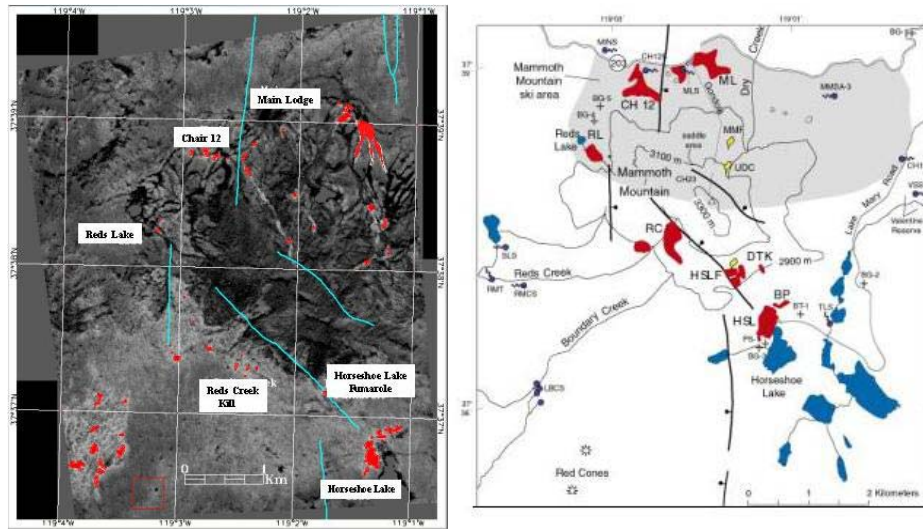


Figure 4-5. Results from the MNF transformation of 2000 AVIRIS imagery. MNF band 3 is shown with a density slice derived map of extreme MNF values in red. A map of known tree-kills in red is shown on the right (note different scale).

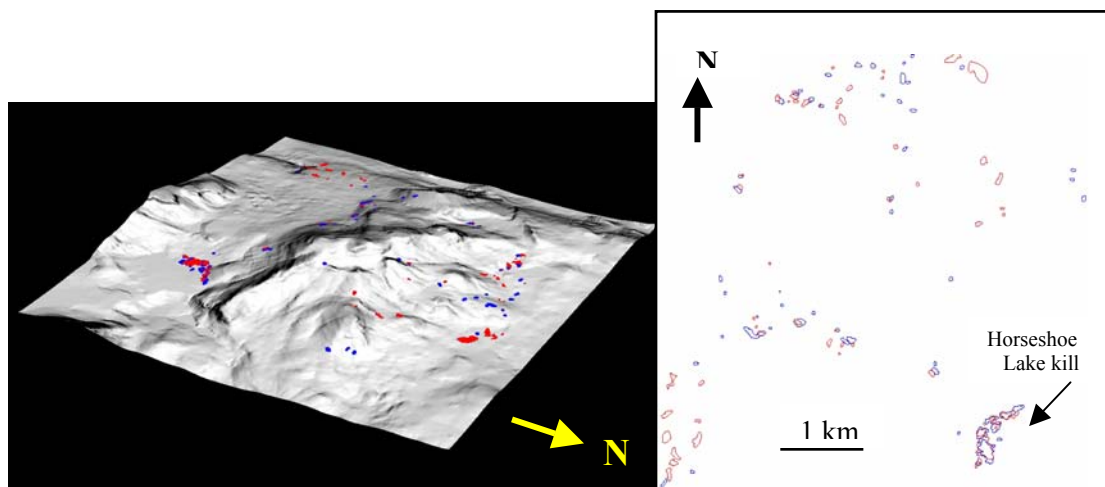


Figure 4-6. Left: results of MNF analysis of the $2.06\text{ }\mu\text{m}$ CO_2 absorption for 1996 (blue) and 2000 (red) AVIRIS imagery. Extreme MNF values from MNF band 2 (1996) and MNF band 3 (2000) shown draped on a shaded 10m USGS DEM. Right: Both years of extreme MNF values shown in plan view.

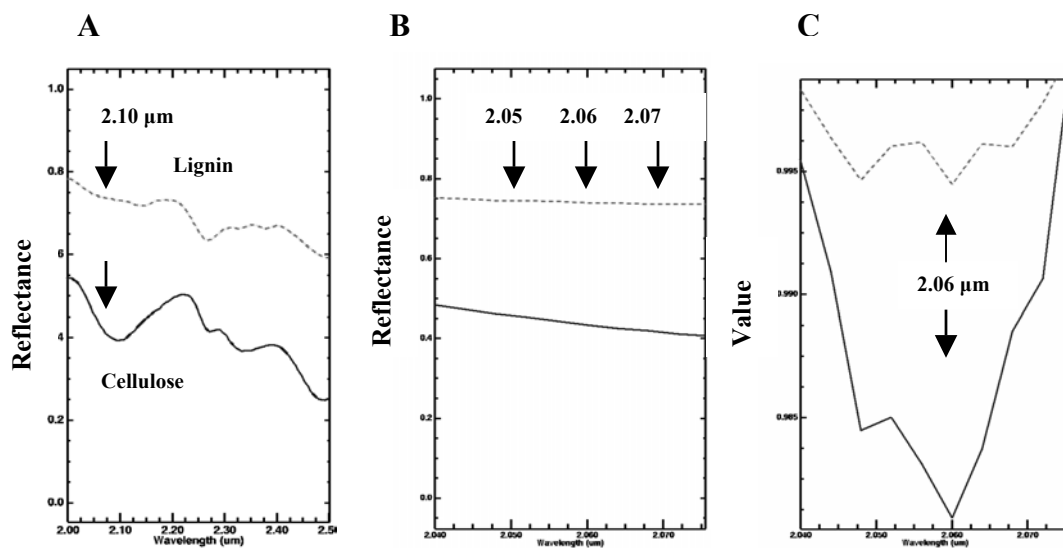


Figure 4-7. A: Spectral signatures of the plant biochemicals, lignin and cellulose, extracted from the USGS vegetation library B: A close up of these plant chemicals centered around 2.06 μm C: Continuum removed spectral signatures of the same chemicals shown in 8B.

